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THE FISHES OBTAINED BY LIEUT. H. C. KELLERS OF THE UNITED STATES NAVAL ECLIPSE EXPEDITION OF 1930, AT NIUAFOOU ISLAND TONGA GROUP, IN OCEANIA

BY

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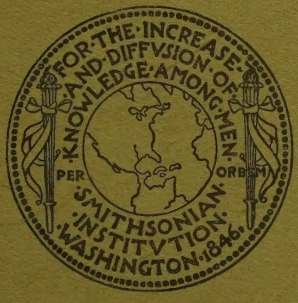

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THE FISHES OBTAINED BY LIEUT. H. C. KELLERS, OF THE UNITED STATES NAVAL ECLIPSE EXPEDITION OF 1930, AT NIUAFOOU ISLAND, TONGA GROUP, IN OCEANIA

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The small collection of fishes reported upon in this paper, collected by Lieut. H. C. Kellers, of the United States Naval Expedition of 1930, is the basis for the first report on the fishes of Niuafoou Island, Tonga Archipelago, ever published. It includes 272 specimens represented by 35 species, of which three are described and figured as new. These are: *Paramyrus kellersi* (Echelidae); *Salarias kellersi* (Blenniidae); and *Salarias niuafoouensis* (Blenniidae).

Family GALEORHINIDAE

EULAMIA SORRAH (Müller and Henle)

One, October 16, 560 mm. Agrees in almost every way with Müller and Henle's plate of *Carcharias* (*Prionodon*) *sorrah*. Though its dentition is undeveloped and part of the umbilical cord still remains, it certainly belongs to the present species. Color of back and upper surfaces leaden gray, under surfaces white.

Family ECHELIDAE

PARAMYRUS KELLERSI, new species

FIGURE 1

Description.—Depth 22⅖, 7⅗ to vent; head 2¼, 6⅔ to caudal base, combined head and trunk to vent 2$\frac{2}{10}$ in tail to caudal base; head width 3⅗ in its length.

Snout 4 in head; eye 6¾, 1½ in snout, little greater than interorbital; maxillary reaches opposite hind eye edge, length from snout tip 2⅘ in head; teeth very minute, simple, conic, edges entire, uniserial at sides of jaw and at least two series anteriorly in each; premaxillary teeth scarcely larger, similar and would form as several irregular series; tongue free; front nostril near snout tip in short tube, hind nostril in upper lip opposite front eye edge; interorbital

7½ in head, low. Gill opening very small slit, largely below and before pectoral.

Lateral line distinct.

Dorsal begins about over middle of pectoral, rather low, confluent with caudal and anal; caudal 4½ in head; pectoral 3½.

Uniform brown above, under surface of head and belly whitish. Along each side of belly a single row of black dots, fading out along front of anal. Head now largely pale or whitish, largely on account of the macerated skin.

Type.—U.S.N.M. No. 91870, from Niuafoou. September 17, 1930. Length, 60 mm.

Diagnosis.—Differs from the East Indian *Paramyrus microchir* (Bleeker) in the coloration, especially the character of a row of distinct black dots along each side of the abdomen.

Named for Lieut. H. C. Kellers.

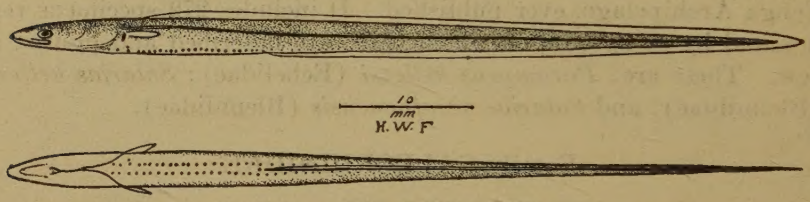

FIGURE 1.—*Paramyrus kellersi*, new species. U.S.N.M. No. 91870 (type)

Family OPHICHTHYIDAE

STETHOPTERUS SEMICINCTUS (Lay and Bennett)

One, October 1, 274 mm. Thirty black saddles along dorsal part of body.

Family ECHIDNIDAE

LYCODONTIS MELEAGRIS (Shaw and Nodder)

Three, October 1, 130 to 180 mm, in poor condition. These specimens have the usual dentition and the mouth cleft 2½ to 2⅗ in head. Pale brown with three or four irregular series of blackish-brown blotches, little smaller on head and extending on fins.

LYCODONTIS FLAVOMARGINATA (Rüppell)

One, August 31, 1,300 mm. Generally warm brownish. Numerous fine blackish spots on head and fore part of trunk, gradually becoming larger until assuming blackish blotches, very irregular and variable on tail. Black blotches or spots both on dorsal and anal. Gill opening in large black blotch. Greatly resembles Bleeker's figure of *Gymnothorax javanicus*. Native name, "toke."

LYCODONTIS RUPPELLI (McClelland)

One, October 8, 510 mm. Interesting as differing somewhat from Bleeker's figure of *Gymnothorax reticularis*. Generally brown with 17 transverse blackish-brown bands, most of which narrower than paler interspaces. Bands also variable, though almost all complete or none quite so narrow as Bleeker shows. The first dark band interocular and not extended below eye, where whole edge of jaw as well as prerictal region whitish, though with black blotch at mouth angle. A long anal smaller black spot between each black transverse band, which sometimes forks and produces two black blotches on otherwise whitish anal.

ENCHELYNASSA CANINA (Quoy and Gaimard)

One, September 3, 712 mm. General appearance uniform brown, made up of extremely numerous slightly dark specks, dots, or lines of more or less transverse course, the whole hardly giving but slightly variegated appearance.

UROPTERYGIUS MARMORATUS (Lacépède)

One, September 4, 210 mm; and 1, September 14, 220 mm.

Family BELONIDAE

BELONE PLATYURA Bennett

One, 430 mm, caudal ends broken off. Lower jaw slightly over eye diameter longer than upper jaw. Back and upper surface neutral or slate black, strongly in contrast with silvery white lower surface. Fins pale, dorsal and caudal slightly browner.

Family MUGILIDAE

MYXUS LEUCISCUS Günther

One, September 1, 52 mm; and 2, September 3, 35 and 51 mm. Scales 41 or 42 in lateral line to caudal base. Pectoral with axillary scale. A. III, 10.

NEOMYXUS CHAPTALII (Eydoux and Souleyet)

Eight, September 1, 53 to 76 mm; and 1, September 17, 55 mm.

Family DULEIDAE

DULES MARGINATUS Cuvier

One, August 26, 25 mm. Back leaden gray to neutral gray, sides and below silvery white. Fins pale or whitish, caudal base blackish, though fin otherwise entirely whitish.

DULES TAENIURUS Cuvier

Three, August 26, 26 to 30 mm. In smallest caudal white with a single large black spot on each lobe and median smaller black spot. Also 1, September 1, 37 mm; 3, September 17, 34 to 61 mm; and 1, October 26, 123 mm.

Family SERRANIDAE

CEPHALOPHOLIS URODELUS (Schneider)

Four, September 1, 120 to 179 mm; and 1, September 8, 187 mm.

SERRANUS UNDULOSUS (Quoy and Gaimard)

One, August 26, 33 mm. Dark or uniform blackish brown. Pale blotch at soft dorsal base and along back apparently a discoloration. Hind preopercle edge denticulate and large spine at angle.

SERRANUS MERRA (Bloch)

Two, September 5, 138 to 156 mm; and 1, September 8, 158 mm.

GRAMMISTES SEXLINEATUS (Thunberg)

One, August 26, 49 mm. Differs a little from Morita's colored figure as published by Jordan and Seale in 1906, as my example has but five white longitudinal lines, of which the second and third are not united on the caudal base.

Family LETHRINIDAE

PENTAPUS AUROLINEATUS (Lacépède)

One, September 3, 225 mm. Interesting in comparison with Garrett's colored plate as published by Günther. In my specimen fins now all very dull orange-brown. White blotch below last dorsal rays conspicuous. Body more or less olivaceous with narrow gray lines following longitudinally in each row of scales above lateral line and five broad ones horizontally below lateral line.

Family CHAETODONTIDAE

HOLACANTHUS NICOBARIENSIS (Schneider)

One, October 6, 47 mm. Agrees largely with the figure by Fowler and Bean, though with the second larger circle on the posterior half of the body complete over the soft dorsal; moreover, the narrow line in front extending completely over soft dorsal above and anal below.

Family HEPATIDAE

HEPATUS TRIOSTEGUS (Linnaeus)

Thirteen, August 26, 28 to 50 mm; 2, September 1, both 28 mm; 1, September 5, 32 mm; and 1, September 17, 42 mm.

NASO LITURATUS (Schneider)

One, September 5, 238 mm.

Family CIRRHITIDAE

CIRRHITUS PINNULATUS (Schneider)

One, September 1, 122 mm. Body, head, and upper fins almost entirely finely dotted with white. One, September 3, 206 mm; 1, September 13, 100 mm, with white dots like first; 2, September 14, 168 to 180 mm.

Family ABUDEFDUFIDAE

ABUDEFDUF SORDIDUS (Forskål)

One, August 26, 28 mm; and one, September 1, 28 mm.

Family LABRIDAE

THALASSOMA UMBROSTYGMA (Rüppell)

Three, September 1, 63 to 104 mm.

THALASSOMA sp.

One, September 1, 37 mm. Pale brownish. Three black basal spots on dorsals, one medial and others as one at front and hind portions. Also two small inconspicuous dusky basal spots, about equidistant before large median spot and four behind same. Also black median spot on caudal base.

Family GOBIIDAE

BATHYGOBIUS FUSCUS (Rüppell)

One, August 23, 65 mm; 4, August 27, 51 to 95 mm; 1, September 1, 63 mm; 7, September 13, 30 to 88 mm; 1, September 14, 75 mm; 7, September 17, 42 to 87 mm; 5, October 5, 50 to 83 mm; and 19, October 12, 58 to 106 mm.

ZONOGOBIUS SEMIDOLIATUS (Valenciennes)

One, August 27, 27 mm.

Family BLENNIIDAE

SALARIAS SALIENS (Forster)

Thirty-four, September 1, 41 to 75 mm; 5, September 6, 30 to 72 mm; 1, September 13, 65 mm; 2, September 19, 57 to 65 mm; 1, October 4, 84 mm; and 1, October 26, 68 mm.

SALARIAS KELLERSI, new species

FIGURE 2

Description.—Depth 4⅕ to 5; head 4⅕ to 4⅗, width 1⅕ to 1¼. Snout 3 to 3½ in head; eye 3⅔ to 4, 1⅕ to 1¼ in snout, greater than interorbital, with simple supraorbital tentacle three-fifths of eye; maxillary reaches opposite hind pupil edge; lips very finely and obsoletely scalloped along edges; mouth width 2 to 2⅛ in head; teeth fine, flexible, uniform, but no canines present; interorbital narrowly concave, half of eye; no predorsal tentacle. Gill rakers

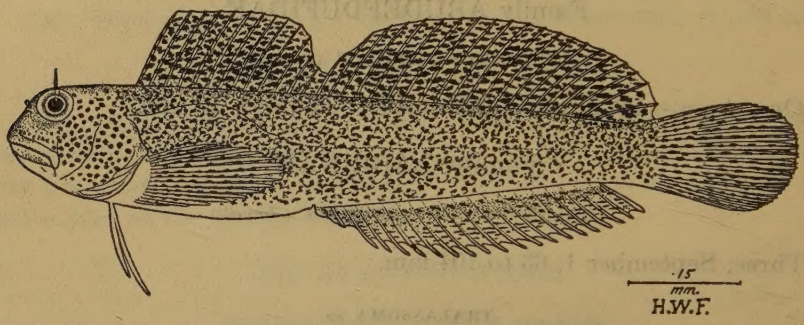

FIGURE 2.—*Salarias kellersi*, new species. U.S.N.M. No. 91944 (type)

uniformly short, slender, about 16, one-fourth of gill filaments, which one-half of eye.

Lateral line only distinct anteriorly as arch above pectoral.

D. XIII, 20 or 21, first dorsal height 1½ to 1⅔ in head, second dorsal height 1¼ to 1⅗; A. I, 19 to 21, fin height 1⅞ to 2⅔; caudal 1, convex behind; least depth of caudal peduncle 2¼ to 2⅓; pectoral equals head; ventral 1⅓ to 1½.

Above pale gray-white, under surface of head and belly uniform whitish. Head above, entire body above and fins except ventrals with very numerous thick set, neutral brown to dusky or black spots, most nearly or quite black on fins. On body spots as accentuation in vermiculate dark lines or bars. On dorsals basally spots large basally and greatly contrasted. Anal with marginal points of rays and their membranes neutral gray.

Type.—U.S.N.M. No. 91944, from Niuafoou. September 1, 1930. Length, 103 mm. Also paratype with same data, 81 mm.

Diagnosis.—Known by its finely dotted or spotted coloration, the spots all very close, contrasted, extremely numerous, and extending over the body, except belly and under surface of head.

Compared with a small example identified by Jordan and Seale, but 28 mm long and reported as *Alticus guttatus* from Apia, Samoa, U.S.N.M. No. 52255, that specimen differs at once in the presence of two brown spots, each little less than eye and immediately before bases of ventrals. Its body is also marked with four rows of rather large reddish-brown spots, which more or less emphasize in pairs seven or eight faded transverse slightly darker bands.

Additional material: 4, August 23, 88 to 127 mm; 4, August 26, 77 to 85 mm; 3, September 1, 65 to 84 mm; 2, September 7, 84 to 108 mm; 4, September 13, 54 to 118 mm; 1, September 19, 73 mm; and 1, October 12, 83 mm.

Named for Lieut. H. C. Kellers.

SALARIAS ANEITENSIS Günther

Two, September 1, 59 to 99 mm; 1, September 17, 89 mm; and 1 October 26, 130 mm. D. XII or XIII, 16 or 17. A. 17 to 20. In my "Fishes of Oceania," I copied the statement from Günther that the depth of the body is 5½ in the body without caudal, though his figure shows 4½. His figure is also shown without supraocular flap, which is present in all my examples. The peculiar spotted coloration, including the spotted caudal, is also a characteristic specific distinction.

SALARIAS EDENTULUS (Schneider)

One, August 23, 104 mm; 5, August 26, 45 to 85 mm; 6, September 1, 81 to 115 mm; 2, September 13, 94 to 110 mm; 1, September 14, 105 mm; 1, September 19, 94 mm; 2, October 5, 80 to 93 mm; and 3, October 26, 70 to 100 mm; also 1 without date of capture, 100 mm.

SALARIAS NIUAFOOUENSIS, new species

FIGURE 3

Description.—Depth 4½ to 5; head 3⅘ to 4⅖, width equals its length. Snout 2⅞ to 3 in head; eye 4⅓ to 4⅔, 1⅔ to 1¾ in snout, greater than interorbital, with fringed supraorbital tentacle little greater than eye; maxillary reaches opposite hind pupil edge; upper lip finely fringed, lower entire; mouth width 1⅔ to 1¾ in head; teeth fine, flexible, and pair of canines in each jaw, upper pair little larger though moderate; interorbital concave, half of eye; short simple tentacle at each side of predorsal at occipital region. Gill opening with free fold across broad isthmus.

Lateral line arched above pectoral, median on tail and complete to caudal base.

D. XII, 16, first dorsal height 1¾ to 2⅓ in head, second dorsal height 1½ to 1⅘; A. 18 or 19, fin height 1⅘ to 2⅛; caudal 1 to 1⅛, convex behind; least depth of caudal peduncle 2¼ to 2⅞; ventral 1½ to 1⅔; pectoral 3½ to 4 in combined head and body to caudal base.

Back and upper surfaces brown, with six transverse obsolete darker broad bands on trunk and tail, each emphasized as two still dark or as pair of darker bands within. Front of head and cheeks variegated with pale or creamy vermiculate lines, variably broken as spots, arcs, or bars. At upper lips they resolve into narrow borders for five transverse dark bars, which extend down on lower surface of

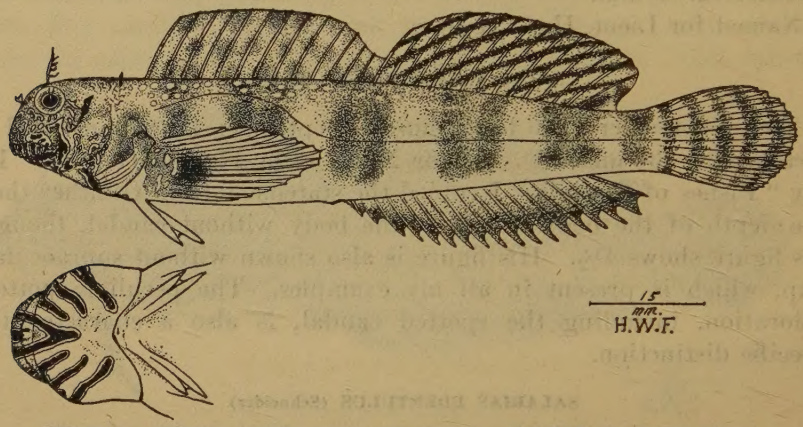

FIGURE 3.—*Salarias niuafooensis*, new species. U.S.N.M. No. 91932 (type)

head. From each side of median one on upper lip dark bands meet and form a Y on chin, each side of which three others extend on lower side of head. Black oblique bar rather close behind eye. Along upper surface of back some obscure or faint orange spots. Also few pale spots at pectoral base and before. Spinous dorsal with obsolete dark blotches in about three irregular series. Second dorsal with oblique dusky to blackish bands. Caudal also with dark transverse bands, most distinct on fin rays. Anal neutral black terminally. Pectoral with dark median diffuse basal spot.

Type.—U.S.N.M. No. 91932, from Niuafoou. September 17, 1930. Length, 101 mm. Also paratype with same data, 87 mm.

Diagnosis.—Apparently related to *Salarias poptae* Fowler, but that species is without the nuchal tentacle and the dark bands on each side of the head extending down to throat.

SALARIAS LINEATUS Valenciennes

Four, August 26, 77 to 91 mm; 1, August 27, 80 to 82 mm; 2, September 3, 71 to 86 mm; 4, September 7, 78 to 83 mm; 3, September 13, 44 to 50 mm; 1, September 14, 78 mm; 2, September 19, 67 to 69 mm; 1, September 24, 93 mm; 1, September 20, 72 mm; 2, October 5, 66 to 81 mm; 1, October 12, 90 mm; and 3, without date of capture, 72 to 82 mm.

SALARIAS CAESIUS Seale

Two, August 23, 55 to 74 mm; 4, August 27, 49 to 68 mm; 7, September 1, 48 to 64 mm; 3, September 3, 48 to 68 mm; 8, September 6, 16 to 35 mm; 1, September 7, 71 mm; 1, September 13, 67 mm; 2, September 17, 52 to 57 mm; 2, September 14, 58 to 60 mm; 3, September 19, 54 to 57 mm; 1, September 24, 58 mm; 1, October 4, 70 mm; 1, October 5, 65 mm; 2, October 12, 53 to 67 mm; 1, October 26, 55 mm; and 1, without date of capture, 62 mm.

Family BALISTIDAE

BALISTES VIDUA Richardson

One, October 22, 218 mm. Much darker than Baldwin's painting as published by Jordan and Evermann in 1905. Whole body, except second dorsal, anal, and caudal, uniform black; also borders of second dorsal and anal black, while first dorsal is also black.

BALISTAPUS UNDULATUS (Park)

One, October 22, 158 mm. Agrees with Bleeker's figure of *Balistes* (*Balistapus*) *lineatus*.

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